

Exhibit P

Control Nos.: 95/001,339; 95/000,578; 95/000,579

Docket No. 635162800300

REMARKS

I. Introduction

On May 31, 2016, the Patent Trial and Appeal Board (the “Board”) issued a Decision affirming the Examiner in part. In the Decision, the Board issued a number of new grounds of rejection. (Decision at 102.) The Patent Owner responds by respectfully requesting to reopen prosecution before the Examiner pursuant to 37 C.F.R. § 41.77(b)(1). This Response includes both claim amendments and evidence – the accompanying Second Supplemental Declaration of Dr. Carl Sechen pursuant to 37 C.F.R. § 1.132 – to overcome the new grounds of rejection.

With respect to the claim amendments, the Patent Owner has made the following principle amendments to overcome the new grounds of rejection:

- Phase Lock Loop (PLL) Device
- Register
- Logic Element

The amendments are detailed in Section II. The Patent Owner respectfully submits that the claims, as amended, overcome the new grounds of rejection as detailed in Sections III-VI and in the accompanying Second Supplemental Sechen Declaration.

II. Claim Amendments and Discussion of Support

The ’912 Patent has four original independent claims: claims 1, 15, 28, and 39. Previously, claims 52, 57, 67, 77, 82, and 87 were added independent claims. The amendments to the claims are discussed below with a discussion of support pursuant to 37 C.F.R. §§ 1.530(e) and 1.941. It is also noted that Section I of the Second Supplemental Sechen Declaration (“Second Supp. Sechen Decl.”) provides a detailed analysis of the support for the claim amendments.

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A. Phase Lock Loop (PLL) Device

Claim 1 is amended to recite (exemplary support citations in curly braces):

a phase-lock loop device mounted to the printed circuit board, the phase-lock loop device operatively coupled to the plurality of DDR memory devices, the logic element, and the register,

wherein, in response to signals received from the computer system {5:28}, the phase-lock loop (PLL) device {50 in Figs. 1A, 1B} transmits a PLL clock signal {5:29} to the plurality of DDR memory devices, the logic element, and the register {5:29-31}[].

Claims 15, 28, 39, 52, 67, 77, 82 and 87 have identical or nearly identical recitations. *See also* Second Supp. Sechen Decl. at ¶ 10.

B. Register

Next, the Patent Owner has amended claim 1 to recite (exemplary support citations in curly braces):

a register...

wherein, the register {60 in Figs. 1A, 1B} (i) receives, from the computer system {5:31}, and (ii) buffers, in response to the PLL clock signal {Figs. 1A, 1B; 5:31}, a plurality of row/column address signals {7:43-45} and the bank address signals {7:50-51}, and (iii) transmits the buffered plurality of row/column address signals and the buffered bank address signals to the plurality of DDR memory devices {30 in Figs. 1A, 1B; 5:34-36}, wherein the at least one row/column address signal received by the logic element comprises at least one row address signal received by the logic element, and wherein the plurality of row/column address signals received by the register {A₀-A_n in Figs. 1A, 1B} are separate from the at least one row address signal received by the logic element {A_{n+1} in Figs. 1A, 1B}[].

Claims 15, 28, 39, 52, 67, 77, 82 and 87 have identical or nearly identical recitations. *See also* Second Suppl. Sechen Decl. at ¶ 11.

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C. Logic Element

Additionally, claim 1 is amended to recite (exemplary support citations in curly braces):

the logic element receiving a set of input control signals from the computer system, the set of input control signals comprising at least one row/column address signal, bank address signals, and at least one chip-select signal, ...

wherein the logic element generates gated column access strobe (CAS) signals or chip-select signals {Figs. 1A, 1B, 3A, 3B; 17:28-19:52l 22:50-63; 23:6-25} of the output control signals in response {6:55-63} at least in part to (i) the at least one row address signal {A_{n+1} in Figs. 1A, 1B; A13 in Figs. 3A, 3B; 7:46-53}, (ii) [a] the bank address signals {B_{0-B_m} in Figs. 1A, 1B; BA₀, BA₁ in Figs. 3A, 3B; 7:46-53}, and (iii) the at least one chip-select signal {CS₀, CS₁ in Fig. 1A; CS₀ in Fig. 1B; 7:46-53} of the set of input control signals and (iv) the PLL clock signal {Figs. 1A, 1B; 5:29-30; “clk_in” in 17:28-19:52}.

Claims 15, 28, 39, 52, 67, 77, 82 and 87 have identical or nearly identical recitations. *See also* Second Suppl. Sechen Decl. at ¶ 12.

D. Other Amendments

A number of other amendments were made for conformity.

The dependency of claim 43 has been changed to claim 39 in view of the cancellation of claim 42.

The dependency of new claim 54 has been changed to new claim 52 in view of the cancellation of new claim 53. The recitation of “wherein the transmission of the buffered bank address signals by the register is timed to the clock signals received from the phase-lock loop device, and the generation of the first number of chip-select signals by the logic element is timed to the clock signals received from the phase-lock loop device” previously in new claim 54 has been deleted in view of the amendment to new claim 52.

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In new claim 123, the recitation “the logic element is responsive at least in part to a row address bit of the at least one row/column address signal, the bank address signals, and the at least one chip-select signal by generating” has been replaced by “the chip-select signals generated by the logic element are” in view of the amendment to claim 1.

The dependency of new claim 125 has been changed to new claim 123 in view of the cancellation of new claim 124. The phrase “the row address bit” has been changed to “the at least one row address signal” and the recitation “wherein the transmission of the buffered bank address signals by the register is timed to the clock signals received from the phase-lock loop device, and the generation of the first number of chip-select signals by the logic element is timed to the clock signals received from the phase-lock loop device” has been deleted in view of the amendment to claim 1.

The dependency of new claim 131 has been changed to claim 1 in view of the cancellation of new claims 128-130.

The dependency of new claim 134 has been changed to claim 15 in view of the cancellation of claim 25.

The term “the bank address signals” has been deleted from claims 134-136 in view of the amendments to claims 15, 28 and 39.

III. Claims 1, 3, 4, 6, 8, 10-15, 18-20, 22, 24, 25, 27-29, 31, 32, 34-43, 45-50, 120-122, and 132-136 Are Patentable Over Amidi In View Of Dell 2 (Ground 5)

Claims 1, 3, 4, 6, 8, 10-15, 18-20, 22, 24, 25, 27-29, 31, 32, 34-43, 45-50, 120-122 and 132-136 have been rejected by the Board as obvious over Amidi in view of Dell 2. These amendments distinguish the claims from the combination of Amidi and Dell 2. *See* Second Supp. Sechen Decl. at Section II.

Dell 2 is cited for teaching or suggesting “a logic element receiving and using free signals, including a bank address signal”, and Amidi is cited for its “suggestion to use other types of

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memory devices.” (Decision, 43.) The Decision then concludes that the combination of Amidi and Dell 2 teaches or suggests generating a chip-select, CAS, or rank selecting signal in response to a bank address signal. (Decision, 81.) To address the Board’s rejection, Patent Owner narrowed the claim to include:

- “in response to signals received from the computer system, the phase-lock loop (PLL) device transmits a PLL clock signal to the plurality of DDR memory devices, the logic element, and the register”
- “the register (i) receives, from the computer system, and (ii) buffers, in response to the PLL clock signal, a plurality of row/column address signals and the bank address signals, and (iii) transmits the buffered plurality of row/column address signals and the buffered bank address signals to the plurality of DDR memory devices, wherein the at least one row/column address signal received by the logic element comprises at least one row address signal received by the logic element, and wherein the plurality of row/column address signals received by the register are separate from the at least one row address signal received by the logic element”
- “the logic element generates gated column access strobe (CAS) signals or chip-select signals of the output control signals in response at least in part to (i) the at least one row address signal, (ii) the bank address signals, and (iii) the at least one chip-select signal of the set of input control signals and (iv) the PLL clock signal.”

As described herein, the claim amendments highlight at least two differences between the ‘912 invention and the prior art.

First, the claim amendments now require: in response to signals received from the computer system, the phase-lock loop (PLL) device transmit a PLL clock to the plurality of DDR memory devices, the logic element, and the register. Amidi transmits a PLL clock signal to the register and memory, but not to the CPLD. Thus, Amidi does not disclose the PLL device transmitting the PLL clock to the *logic element*; the output of PLL 606 is neither directly nor indirectly transmitted to the

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CPLD 604. *See* Second Supp. Sechen Decl. at ¶¶ 18-19. Additionally, a POSITA would not be motivated or inclined to transmit the PLL clock to CPLD 604. *Id.* at ¶ 20.

Second, the amended claims now also require that the logic element generates certain output control signals (e.g., gated column access strobe (CAS) signals or chip-select signals recited in claim 1) in response at least in part to (i) the at least one row address signal, (ii) the bank address signals, and (iii) the at least one chip-select signal of the set of input control signals and (iv) the PLL clock signal. Amidi's CPLD 604 never receives bank address signals and hence Amidi's control signals cannot be generated based on bank address signals. Instead, the control signals (rcs0a, rcs0b, rcs1a, rcs1b, rcs2a, rcs2b, rcs3a, and rcs3b) are based on the row address signals and chip-select signals. Thus, Amidi does not disclose the CPLD generating the gated CAS signals or chip-select signals in response to *the bank address signals*. Second Supp. Sechen Decl. at ¶¶ 21-22. Moreover, since the output of PLL 606 is neither directly nor indirectly transmitted to the CPLD 604, a POSITA would understand that the PLL clock does not control the operation of CPLD 604. Thus, Amidi is further deficient by failing to disclose the CPLD generating the gated CAS signals or chip-select signals in response to the *PLL clock signal*. *Id.* at ¶ 18-19.

Dell 2 does not cure the deficiencies of Amidi with respect to the amended claim. Dell 2 merely discloses a remapping or reassignment of a row address bit (A12) to be used as a bank address bit (BA1). Dell 2 does not disclose using bank address signals to generate a chip-select signal or a CAS signal. Second Supp. Sechen Decl. at ¶ 25.

Even taken in combination, Amidi and Dell 2, it would not be obvious to a POSITA to modify Amidi's system to provide the bank address signals to the CPLD device, and generate chip-select signals based on the bank address signals and a row address signal. As amended, the claims require that the *logic element receives* at least one row address signal and *bank address signals*, and require that *the register* (i) *receives*, from the computer system, and (ii) buffers, in response to the PLL clock signal, a plurality of row/column address signals and *the bank address signals*, and (iii) transmits the buffered plurality of row/column address signals and the buffered bank address signals to the plurality of DDR memory devices. The claims also require the plurality of row/column

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address signals received by the register are separate from the at least one row address signal received by the logic element. In other words, in the configuration recited by the claims, the bank address signals are received by the logic element, the register and the plurality of memory devices. Under such circumstances, Amidi does not use bank address signals to generate control signals (and certainly not the bank address signals and the at least one row address signal). The claims, however, require generating CAS signals or chip-select signals based on a row address signal and bank address signals. Second Supp. Sechen Decl. at ¶¶ 23-24 and 26.

Based on the above, it would not be obvious to a POSITA to combine Amidi and Dell 2 to reach the claimed invention, as amended. For the sake of argument, however, even the proposed combination of Amidi and Dell 2 fails to disclose the claimed invention. Therefore, even in combination, Amidi in view of Dell 2 fails to disclose all of the claim recitations of the claims.

While claims 132-133 are patentable over Ground 5 based on amended claim 15 from which they depend, these claims are patentable for an additional reason. Specifically, claim 132 (and its dependent claim 133) recite that “the command signal is transmitted to only one DDR memory device at a time.” Claim 16 (and its dependent claim 17) have a similar recitation, and the Board found that Amidi and Dell 2 were deficient as to this recitation. (Decision, 75-77, 82-83.) Based on that reasoning, claims 132 and 133 are similarly patentable over Ground 5. It is believed that the inclusion of these claims under Ground 5 has been in error.

IV. Claims 1, 3, 4, 6, 8, 10-15, 18-20, 22, 24, 25, 27-29, 31, 32, 36-39, 41-43, 45, 50, 52-54, 56, 58, 60-63, 67-71, 75, 77-93, 109-111, and 120-136 Are Patentable Over Micron In View Of Amidi (Ground 13)

Claims 1, 3, 4, 6, 8, 10, 11, 15, 18-20, 22, 24, 25, 27-29, 31, 32, 36-39, 41-43, 45, 50, 52-54, 56, 58, 60-63, 67-71, 75, 77-93, 109-111, and 120-136 have been rejected by the Board as obvious over Micron in view of Amidi.

The Decision relied on two different cases proposed by Requester 3 to reject the claims. The first case refers to a memory controller that generates one row address signal more than the actual

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memory devices use (Decision, 94), and the second case refers to a memory controller that generates one bank address signal more than the actual memory devices use (Decision, 94-95.)

As discussed above, the claims, as amended, are directed to a logic element separately receiving a row address signal (i.e., similar to the first case). As claimed, the registers, and thereby the plurality of memory devices, use the bank address signals. Thus, the amended claims exclude the second case involving one more bank address signal than required by the actual memory devices. In other words, the rationale of the second case does not apply to the amended claims.

Instead, the claims require that the logic element receives at least one row address signal separate from the address signals received by the register, and as discussed above, Amidi does not suggest using a bank address signal for generating CAS signals or chip-select signals (or rank multiplication) when a row address signal is not used by the actual memory devices. Additionally, Amidi provides no recognition to use both the bank address signals and a row address signal for rank multiplication or the generation of chip-select signals or CAS signal signals. Second Supp. Sechen Decl. at ¶ 29.

The Decision rejects the claims under the first case based on what a POSITA “would have recognized regarding bank address signals, as well as other signals, in the context of memory modules.” (Decision, 95.) The Decision concludes, based on Requester 3’s expert, Dr. Kozyrakis, that a POSITA would have recognized to use bank address signals to generate chip-select signals. (*Id.*, 96.) Additionally, the Decision concludes that a POSITA, employing their background knowledge, would have known that additional signals are needed to generate the chip-select signals and would turn to bank address signals in order to multiply ranks. (*Id.*, 97.) But, Amidi already claims to provide rank multiplication without the use of bank address signals. Second Supp. Sechen Decl. at ¶ 30.

The conclusions of Requester 3’s expert at best represent how an expert, not a POSITA, would understand Amidi’s disclosure. There is no question that a POSITA would recognize the conventional use of bank address signals in Amidi, but there is no suggestion of using the bank

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address signal for rank multiplication or the generation of chip-select signals or CAS signal signals. Amidi is representative evidence of what a POSITA would understand. No cited art suggests a recognition of the need for bank address signals for rank multiplication, or for generation of CAS signals or chip-select signals. Amidi was plainly not aware of any need – as the bank address signals are not used to generate the chip select signals. A POSITA reading Amidi would have recognized that Amidi claims to achieve rank multiplication without bank signals for generating chip-select signals and would not have recognized an unconventional use for the bank address signals. Second Supp. Sechen Decl. at ¶ 31.

Dr. Kozyrakis, an expert, says that bank address signals are necessary for proper generation of chip select signals, but a POSITA taking Amidi at face value would have understood otherwise. Amidi provides no recognition to use both the bank address signals and a row address signal for rank multiplication or the generation of chip-select signals or CAS signal signals. Second Supp. Sechen Decl. at ¶ 32.

Regardless of whether bank address signals are necessary for proper operation, this is a conclusion of fact and not an indication of what a POSITA would recognize. Amidi's complete omission of using bank address signals is formidable evidence that a POSITA looking at Amidi would not think bank address signals are necessary. Rather a POSITA would conclude that Amidi is operative without bank address signals for generating control signals. To suggest otherwise forces upon Amidi an operating principle that is not present. Namely the recognition that bank address signals are a necessary input for generating chip-select signals, when Amidi clearly does not. Second Supp. Sechen Decl. at ¶ 33.

Requester 3's expert asserts that "the nature of standard DDR commands motivates a person of ordinary skill in the art to use bank address signals to generate chip-select signals." (Decision, 96 (internal citations omitted).) While I agree that a POSITA is not an automaton and possesses common sense, understanding the nature of standard DDR commands is a skill level of an expert. A POSITA possesses far less creativity and skill than an expert, and in view of Amidi would not entertain the nature of standard DDR commands. A POSITA reading of Amidi would give some

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deference to Amidi and understand that its principle of operation does not require bank address signals for generation of chip-select signals. Second Supp. Sechen Decl. at ¶ 34.

Ultimately, regardless of how necessary bank address signals are for generation of chip-select signals, Amidi was plainly unaware of this necessity. It is precisely recognition of this necessity and solution which underlie Netlist's discovery. Second Supp. Sechen Decl. at ¶ 35.

Based on the above, it would not be obvious to a POSITA to combine Micron and Amidi to reach the claimed invention, as amended. For the sake of argument, however, even the proposed combination of Micron and Amidi fails to disclose the claimed invention. Therefore, even in combination, Micron in view of Amidi fails to disclose all of the claim recitations in the claims.

While claims 132-133 are patentable over Ground 13 based on amended claim 15 from which they depend, these claims are patentable for an additional reason. Requester 3 never presented a proposed rejection for claims 132 and 133 under Ground 13 during the reexamination. *See* Requester 3's February 2012 Response, 23-25. It is believed that the inclusion of these claims under Ground 13 has been in error.

V. Claims 52-54, 56, 67-71, 77-79, 82-84, and 87-89 Are Patentable Over Amidi In View Of Dell 184 (Ground 20)

Claims 52-54, 56, 67-71, 77-79, 82-84, and 87-89 have been rejected by the Board as obvious over Amidi in view of Dell 184.

These amendments distinguish the claims from the combination of Amidi and Dell 184, as discussed above. *See also* Second Supp. Sechen Decl. Section IV.

VI. Claims 1, 3, 4, 6, 8, 10-15, 18-20, 22, 24, 25, 27-29, 31, 32, 34-43, 45-50, 52-54, 56, 58, 60-63, 67-71, 75, 77-93, 109-11, and 120-126 Are Patentable Over Micron In View Of Amidi, Further In View Of Olarig (Ground 21)

Claims 52-54, 67-71, 77-79, 82-84, and 87-89 have been rejected by the Board as obvious over Micron in view of Amidi and Olarig.

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These amendments distinguish the claims from the combination of Micron, Amidi and Olarig, as discussed above. *See also* Second Supp. Sechen Decl. Section V.

VII. Additional Points

Neither the claim amendments nor these Remarks should be in any way construed that the Patent Owner agrees or acquiesces to any of the new grounds of rejection in the Board's Decision. The decision to not directly address in this Response any specific points in the Board's Decision does not indicate that Patent Owner agrees with or acquiesces to these specific points. The Patent Owner reserves its right to seek or defend similar claims in related applications or patents, which may be in reexamination.

Furthermore, the Patent Owner discusses above only some of the claim features of the '912 Patent for the sake of brevity and some of the reasons of patentability with respect to the new grounds of rejection. These discussions should not be interpreted as Patent Owner asserting or acquiescing that the patentability of the current pending claims is because of only these features or reasons.

Additionally, where the Patent Owner has previously presented different arguments, the Patent Owner's decision to not raise them in this Response should not be construed as the Patent Owner abandoning or relinquishing those arguments. The Patent Owner reserves the right to represent those previous arguments in this reexamination or in related application or patents, which may be in reexamination.

VIII. Conclusion

For the above reasons, the Patent Owner respectfully requests that the pending claims be confirmed or allowed over the new grounds of rejection.

If the Patent Office determines that relief is required, the Patent Owner petitions for any required relief and authorizes the Commissioner to charge the cost of such petitions and/or other

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